LISTING OF THE CLAIMS:

61. (Previously Presented) A low-k material for electrically isolating the interconnection lines and vias of an integrated circuit, the low-k material comprising a lower diamondoid-containing polymerized material wherein the lower diamondoid is triamantane.

62. (Previously Presented) The low-k material of claim 61, wherein the material comprises a polymer selected from the group consisting of a polyamide, a polyaryl ether, and a polyimide.

63. (Previously Presented) The low-k material of claim 61, wherein the material further contains porosity in the form of air gaps for reducing the overall dielectric constant of the material.

64. (Previously Presented) The low-k material of claim 61, wherein the triamantane containing portion of the polymer contains fluorine substituents.

65. (Previously Presented) The low-k material of claim 61, wherein the dielectric constant of the material is less than about 4.

66. (Previously Presented) The low-k material of claim 61, wherein the dielectric constant of the material is less than about 3.

67. (Previously Presented) The low-k material of claim 61, wherein the dielectric constant of the material is less than about 2.

68. (Previously Presented) The low-k material of claim 61, wherein the weight of the diamondoids as a function of the total weight of the polymer ranges from about 1 to 100 percent by weight.

69. (Previously Presented) A low-k material for electrically isolating the interconnection lines and vias of an integrated circuit, the low-k material comprising a higher diamondoid-containing polymerized material.

70. (Previously Presented) The low-k material of claim 69, wherein the higher diamondoid of the higher diamondoid-containing material is selected from the group consisting of tetramantane, pentamantane, hexamantane, heptamantane, octamantane, nonamantane, decamantane, and undecamantane.

71. (Previously Presented) The low-k material of claim 69, wherein the material comprises a polymer selected from the group consisting of a polyamide, a polyaryl ether, and a polyimide.

72. (Previously Presented) The low-k material of claim 69, wherein the material further contains porosity in the form of air gaps for reducing the overall dielectric constant of the material.

73. (Previously Presented) The low-k material of claim 69, wherein the higher diamondoid containing portion of the polymer contains fluorine substituents.

74. (Previously Presented) The low-k material of claim 69, wherein the dielectric constant of the material is less than about 4.

75. (Previously Presented) The low-k material of claim 69, wherein the dielectric constant of the material is less than about 3.

76. (Previously Presented) The low-k material of claim 69, wherein the dielectric constant of the material is less than about 2.

77. (Previously Presented) The low-k material of claim 69, wherein the weight of the diamondoids as a function of the total weight of the polymer ranges from about 1 to 100 percent by weight.

78. (Previously Presented) A low-k material for electrically isolating the interconnection lines and vias of an integrated circuit, the low-k material comprising a diamondoid-containing polymerized material, the diamondoid-containing portion of the material

comprising a mixture of lower and higher diamondoids wherein the lower diamondoid is selected from the group consisting of adamantane, diamantane, and triamantane, and wherein the higher diamondoid is selected from the group consisting of tetramantane, pentamantane, hexamantane, heptamantane, octamantane, nonamantane, decamantane, and undecamantane.

79. (Previously Presented) The low-k material of claim 78, wherein the material comprises a polymer selected from the group consisting of a polyamide, a polyaryl ether, and a polyimide.

80. (Previously Presented) The low-k material of claim 78, wherein the material further contains porosity in the form of air gaps for reducing the overall dielectric constant of the material.

81. (Previously Presented) The low-k material of claim 78, wherein the diamondoid containing portion of the polymer contains fluorine substituents.

82. (Previously Presented) The low-k material of claim 78, wherein the dielectric constant of the material is less than about 4.

83. (Previously Presented) The low-k material of claim 78, wherein the dielectric constant of the material is less than about 3.

84. (Previously Presented) The low-k material of claim 78, wherein the dielectric constant of the material is less than about 2.

85. (Previously Presented) The low-k material of claim 78, wherein the weight of the diamondoids as a function of the total weight of the polymer ranges from about 1 to 100 percent by weight.

86. (Previously Presented) A low-k material for electrically isolating the interconnection lines and vias of an integrated circuit, the low-k material comprising a diamondoid-containing material selected from the group consisting of a diamondoid-containing ceramic, a

diamondoid-containing ceramic composite, a CVD diamond film nucleated by diamondoids, and a film deposited by self-assembly techniques.

87. (Previously Presented) The low-k material of claim 86, wherein the diamondoid of the diamondoid-containing material is a lower diamondoid selected from the group consisting of adamantane, diamantane, and triamantane.

88. (Previously Presented) The low-k material of claim 86, wherein the diamondoid of the diamondoid-containing material is a higher diamondoid selected from the group consisting of tetramantane, pentamantane, hexamantane, heptamantane, octamantane, nonamantane, decamantane, and undecamantane.

89. (Previously Presented) The low-k material of claim 86, wherein the diamondoid of the diamondoid-containing material comprises a mixture of lower and higher diamondoids, wherein the lower diamondoid is selected from the group consisting of adamantane, diamantane, and triamantane, and wherein the higher diamondoid is selected from the group consisting of tetramantane, pentamantane, hexamantane, heptamantane, octamantane, nonamantane, decamantane, and undecamantane.

90. (Previously Presented) The low-k material of claim 86, wherein the diamondoid comprises an underivatized diamondoid.

91. (Previously Presented) The low-k material of claim 86, wherein the diamondoid comprises a derivatized diamondoid.

92. (Previously Presented) The low-k material of claim 86, wherein the material further contains porosity in the form of air gaps for reducing the overall dielectric constant of the material.

93. (Previously Presented) The low-k material of claim 86, wherein the diamondoid containing portion of the polymer contains fluorine substituents.

94. (Previously Presented) The low-k material of claim 86, wherein the dielectric constant of the material is less than about 4.

95. (Previously Presented) The low-k material of claim 86, wherein the dielectric constant of the material is less than about 3.

96. (Previously Presented) The low-k material of claim 86, wherein the dielectric constant of the material is less than about 2.

97. (Previously Presented) The low-k material of claim 86, wherein the diamondoid content of the diamondoid-containing material ranges from about 1 to 99.9 percent by weight for the diamondoid-containing ceramic, about 1 to 100 percent by weight for the CVD diamond film nucleated by diamondoids, and about 1 to 99.99 percent by weight for the film deposited by self-assembly techniques.